Setting the Standard



Codes and Standards—cooperative efforts to raise minimum energy efficiency standards

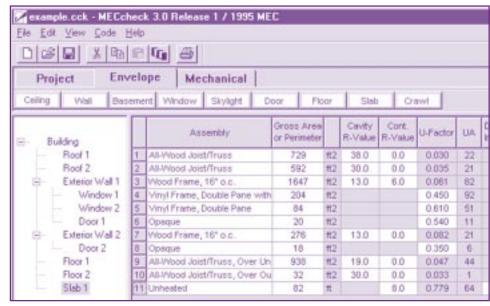
1st Quarter 2000 Volume 8, Issue

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MECcheck™ 3.0 Coming Soon!



MECcheck™ 3.0 Envelope Screen

A new version of MEC*check*TM for Windows® 95, Windows® 98, and Windows® NT 4.0 is on its way. The U.S. Department of Energy (DOE) anticipates having MEC*check*TM 3.0 available for downloading in late April 2000.

The new MECcheckTM software supports most of the common 32-bit Windows® features. These features include the common menus such as File, Edit, View, and Help; a toolbar with common icons such as Open, Save, Cut, Copy, Paste, and Print; and full printing capabilities including Print Preview. The user-input envelope components are stored on a tree-like structure that allows the linking of

windows and doors to walls, and skylights to roofs. This linking allows the user to input gross wall and roof areas instead of net areas — a common request from users. Descriptions of the envelope and mechanical components are stored in a customizable grid — rows and columns can be moved, enlarged, or collapsed. All of the envelope and mechanical equipment information is available from the main screen, allowing direct editing of these inputs. For example, while users previously had to edit basement wall dimensions by bringing up a separate screen, the dimensions can now be edited on the main screen.

(continued on page 2)



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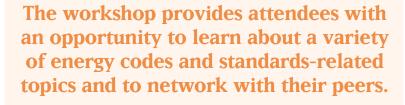
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U.S. Department of Energy and the State of Louisiana Host the 2000 National Workshop on State Building Energy Codes July 10-12, 2000 in New Orleans, Louisiana

The 2000 National Workshop on State Energy Building Codes is scheduled for July 10-12, 2000 at the Hotel Monteleone, New Orleans, Louisiana in the historic French Quarter. The workshop will provide states, industry, code proponents and stakeholder groups involved in the advocacy, adoption, implementation, enforcement, and use of building energy codes with an opportunity to learn about a variety of energy codes and standards-related topics and to network with their peers from across the nation.

Workshop attendees are expected to include Builders, Chief Code Officials, and staff from State Energy Offices, State Code Offices, Building Code Commissions, Utilities, Market Transformation organizations, voluntary programs, and energy advocacy groups. The workshop is also open to others whose work is impacted by building energy codes and who might be interested in the workshop topics. This includes staff from HUD offices, building product suppliers/manufacturers, utility representatives, architects and engineers, insurance industry policy makers, and local code officials and code enforcement staff.

A workshop planning committee is currently reviewing potential workshop session topics, formats, and speakers. Likely topics for the workshop include:



- Status report on National model codes
- Linking energy codes to insurance industry ratings
- ✓ Codes updates from the States
- ✓ Compliance product training
- ✓ Forming alliances with industry and other voluntary programs
- ✓ The role of voluntary beyond code efforts
- ✓ What we can learn from baseline/energy code compliance studies



- Overview of the codes and standards process
- Informing consumers of the benefits of energy-efficient construction
- ✓ Successful strategies for improving code compliance
- Building Science training including indoor air quality/ ventilation and HVAC equipment trade-offs

The conference will feature an exhibit space where displays will showcase the latest in energy-efficient products, code implementation support materials and more. Booth space is still

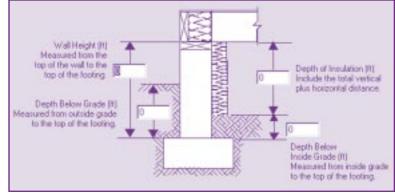
available. Please contact Susan Beal at (318) 797-5187.

Conference registration is \$175.00. Registration includes lunches and a dinner on the riverboat *Natchez*, an evening reception, plus pre- and post-conference activities. Lodging is \$88.00 per night. Call the Hotel Monteleone (504) 523-3341 or (800) 321-6710 for reservations — *ask for Codes Conference!* For more information visit our website at **www.energycodes.org** or contact Wade Byrd or Paula Ridgeway at the Louisiana Department of Natural Resources (225) 342-1399.

MEC*check*[™] 3.0 (continued)

Support has been added for Insulated Concrete Forms (ICFs), and the Stress-Skin Panel calculations have been enhanced. An "Other" assembly option was also added which allows the user to enter a documented U-value for any assembly that is not otherwise supported by the software. Default glazing and door U-value tables can now be displayed from within the software. Graphical illustrations assist the user in determining which dimensions are being requested for basement wall, crawl space wall, and slab inputs.

The $MECcheck^{TM}$ 3.0 help system was greatly enhanced, and now includes graphics. The full Software User's Guide is available from within the software Help system.



Crawl Space Wall Dimensions Input Screen

What's New in the 2000 International Energy Conservation Code (IECC)?

The 2000 edition of the International Energy Conservation Code (IECC) has recently been issued by the International Code Council (ICC). This code addresses energy efficiency in buildings. Prior to 1998, the IECC was the old CABO Model Energy Code (MEC). The following is an overview of what has changed from the 1998 IECC to the 2000 IECC.

Commercial Buildings

Substantial changes were made to the commercial building section of the IECC for the 2000 edition. These changes all reside in Chapter 8, *Design by Acceptable Practice for Commercial Buildings* (formerly Chapter 7 of the 1998 IECC). These changes increase the usability of the IECC by extending the scope of Chapter 8 to cover virtually all commercial buildings.

Chief among the scope changes for 2000 is the addition of materials that address complex mechanical systems, thereby eliminating the previous single-zone HVAC system limitation. Chapter 8 now covers multiple-zone HVAC system types and contains HVAC system requirements that are equivalent to those in the ASHRAE/IESNA Standard 90.1-1989, although they are presented here in simpler, more enforceable language.

Similar expansions in scope can be found in the building envelope section of Chapter 8. Previously, the envelope requirements were applicable only to low-rise commercial buildings (buildings with three stories or less). For 2000, requirements were adjusted enabling use with buildings of any height. In addition, a new set of requirements was added for buildings with large window areas. The chapter on design by acceptable practice now permits glazing areas up to 50% of gross wall area, replacing the 40% limit in the 1998 IECC.

In the lighting systems section, interior lighting power allowances have been updated to make them equivalent with values found in the recently published ASHRAE/IESNA Standard 90.1-1999. In addition, several new usage categories were added to provide better coverage of the full range and variety of commercial buildings.

Finally, an entirely new section was added to Chapter 8 to provide greater design flexibility and to encourage the use of innovative design and non-standard materials. Section 806, *Total Building Performance*, like the IECC's Chapter 4 for residential buildings, permits compliance based on annual energy analysis of the entire building. Together, these changes make Chapter 8 of the 2000 IECC a complete, concise, and self-contained energy code for commercial buildings.

Letters to the Editor

Send your letters to: **Ruth Taylor**Editor, Setting the Standard
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Letters for the next issue must be received by May 12, 2000.

Residential Buildings

The most notable change in the residential buildings portion of the 2000 IECC is a new Chapter 6 containing a four-page optional and stand alone prescriptive compliance approach. This approach can be used only if the window area is less than or equal to 15% of the wall area for single-family, and less than or equal to 25% of the wall area for multi-family. As this chapter is based on other requirements in the IECC, it is not intended to create any new or different requirements, only a simpler prescriptive approach to requirements already in other IECC chapters. IECC Chapter 6 contains essentially the same requirements as the energy chapter (Chapter II) in the International Residential Code.

Other significant changes include:

- The scope has been expanded to include additions, alterations, and repairs.
- ✓ The maximum 0.4 solar heat gain coefficient in southern climates now applies not only to new structures, but also to window replacements and additions. Skylight replacements must have a U-factor of 0.50 or less in all but the mildest climates.
- Exposed foundation insulation is required to have a protective coating.
- Identification of hot and humid areas that are not required to have vapor retarders is simplified. These climates are now identified in the maps in Chapter 3. Additionally, the vapor retarder can be exempted in any climate if "other approved means to avoid condensation and leakage of moisture are provided."
- In the prescriptive envelope compliance path (Section 502.2.4), simple tables with steel-framed wall and high mass wall insulation requirements have been added.
- Duct sealing requirements are rewritten to be consistent with the International Mechanical Code.
- ✓ The definition of "Glazing Area" as it applies to doors is clarified. If the glazed area of the door is less than 50% of the door area, the "glazing area" for compliance calculations is simply the transparent area. If the glazed area is 50% or more of the door area, the "glazing area" is the rough opening of the door, including the frame.

Coming Soon...

www.energycodes.org will soon include information and materials developed by states as part of their State Energy Program (SEP) proposals.

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IESNA Announces New Lighting Power Limits Information

Lighting accounts for a large portion of energy consumption in most buildings, and significant energy savings are possible if lighting power limits are included in building energy codes. The Illuminating Engineering Society of North America (IESNA) has jointly sponsored the proposed new ASHRAE/IESNA 90.1-1999 Energy Standard for Buildings Except Low Rise Residential Buildings, which includes lighting power density (LPD) values for whole buildings and for spaces within

buildings. These LPDs were developed by the Lighting subcommittee of the ASHRAE 90.1 Standing Standards Project committee, working with the IESNA Energy Management committee.

The general concept was to develop lighting energy limits that promote energy efficiency without sacrificing good design and quality lighting. The methodology for calculating LPDs uses available lighting product characteristics, including coefficients of utilization, light loss factors, and lamp efficacies; illuminance values from the *IESNA Lighting Handbook, 8th Edition;* new building construction data; and professional design experience. Using application design models, these characteristics are applied to new construction building spaces to provide the LPDs used in the 90.1 standard.

Up to this point, these background models have resided in a committee-administered database, not accessible to potential users of the standard. IESNA, recognizing the importance of sharing this background data with building code commissions and other interested practitioners, sought the assistance of Northeast Energy Efficiency Partnerships (NEEP) in obtaining funding to develop an accessible database on the IESNA Website.

NEEP and IESNA are pleased to announce that on October 4, 1999, the data became available on the IESNA web site (www.iesna.org). This tool allows users to view one or more sets of general assumptions for a specific space or whole building. A "Calculator" option is provided to allow users to calculate a new space type or select an existing space and manipulate its inputs to arrive at a different calculated LPD.

NEEP and IESNA are pleased to announce that on October 4, 1999, the data became available on the IESNA web site (www.iesna.org).

With the sponsorship of the Rhode Island State Energy Office, the U.S. Department of Energy (DOE) awarded an Energy Codes grant to NEEP to manage the project and the software was developed by Titan Software Systems. Sue Coakley, NEEP Executive Director, noted that "the successful partnering of NEEP with IESNA has resulted in a product that has successfully transformed technical information so building code commissions can understand what lies behind the LPDs used to develop national model energy codes."

Providing background data on application models should aid building code commissions

developing energy codes for commercial buildings. Users' opportunities to review the lighting models, which advance lighting quality while increasing energy efficient lighting design, will help them understand the value of the LPD limits as the basis for state energy code lighting requirements. Joe Howley, Chair, Lighting Subcommittee, ASHRAE/IESNA 90.1, observed that "as building energy codes grow in significance and use throughout the country, the new IESNA LPD web site offers a very useful tool to the professional lighting community, energy code officials and others influencing energy regulations."

Oklahoma Energy Partners and BOCA Team Up for Distance Learning Energy Project

A partnership between the Oklahoma Association of Community Action Agencies (OACAA) and Building Officials and Code Administrators (BOCA) International will provide college credit learning opportunities for code officials, design professionals, contractors, builders, municipal power authorities, and special service providers statewide. The work is financed in whole or in part by funds from the U.S. Department of Energy (DOE) as administered by the Oklahoma Department of Commerce.

The subject matter will be the 1995 CABO Model Energy Code using the MECcheckTM compliance tools, with the curriculum broadcast throughout the state via distance educational interactive video conferencing. Utilization of "full-motion" video conferencing technology will permit the instruction to be delivered in real time to enable participants to interact with the instructor at speeds near broadcast television quality. Individuals who successfully complete all sessions are eligible to receive 1.8 Continuing Education Units (CEUs) or one hour of college credit from Oklahoma State University. Course work began in March at the following locations: Oklahoma City, Tulsa, McAlester, Bartlesville, Woodward and Lawton.

"With energy moving to a market-driven environment, consumers will want homes that are energy efficient," said the OACAA's Wanda DeBruler.

"By bringing this course to our state we will be providing construction professionals with an opportunity to learn the latest techniques for ensuring code compliance. With distance learning technology we will be able to provide this education across the state."

Partners in the Distance Learning Energy Project include the OACAA, Oklahoma Housing Finance Agency, Oklahoma State Home Builders Association, Oklahoma Department of Commerce, Oklahoma Department of Vo-Tech, Oklahoma Weatherization and Housing Advisory Council, Oklahoma Municipal League, Oklahoma Municipal Power Authority, Oklahoma Association of Electrical Cooperatives, Metro Tech, and BOCA International.

The goal of the OACAA via this partnership is to provide code officials, design professionals, contractors, builders, and municipal power authorities with practical, broad-based knowledge on utilizing the Model Energy Code. Rate payer-funded energy efficiency programs for new residential construction will be enhanced by implementation of contemporary building energy codes in Oklahoma.

For more information on the Distance Learning Energy Project, contact the OACAA at (405) 524-4124.

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Update on the Status of State Energy Code

This past winter both **New York** and **Pennsylvania** began rulemaking to implement updated mandatory statewide building codes. Each state proposes to include the adoption of the 2000 International Energy Conservation Code (IECC). The implementation and enforcement of the 2000 IECC will greatly benefit the citizens of both of these states. In 1998, the New York State Energy Research and Development Authority (NYSERDA) estimated that over \$2.8 million in annual energy savings would result from the adoption of the 1995 Model Energy Code (MEC) for the approximately 24,000 new single and multi-family housing units begun each year. Individual homeowners were estimated to save \$116 per year. 1998 estimates by the Alliance to Save Energy indicate that the implementation of the 1993 MEC would reduce air pollution in New York and Pennsylvania by tens of thousands of tons every year. As the great-grandchild of the 1993 MEC, the 2000 IECC has been greatly improved and simplified for easier and more complete implementation by state agencies overseeing the building energy codes.

New York and Pennsylvania are the first states in the nation to begin the implementation process for the 2000 IECC, one of eleven new codes published by the International Code Council.

While New York and Pennsylvania are updating their entire construction and energy codes, several states have been concentrating on modernizing their commercial codes to better reflect recently developed building techniques and materials not addressed in the national standard for energy efficiency in commercial buildings, ASHRAE 90.1-1989. States developing energy codes more efficient than the ASHRAE 90.1-1989 include **Massachusetts, Vermont,** and **Wisconsin.** Massachusetts has already completed a new commercial code, based on ASHRAE 90.1-1999, IECC, and state-specific elements,

which will be mandatory statewide beginning in January 2001. Both Vermont and Wisconsin are developing codes that will be equivalent to ASHRAE 90.1-1999, which is due to be published this spring. Incidentally, the ASHRAE 90.1-1999 is not referenced in the 2000 IECC.

In an unusual approach, which will undoubtedly reap great benefits for energy code implementation and enforcement, **Iowa** and **Louisiana** are exploring opportunities to involve the insurance industry in supporting building energy codes. The State of Iowa is developing a program to educate the insurance industry on how building energy code compliance may reduce health problems, property risks, claims and losses. Iowa also intends to encourage the insurance industry to offer premium reduction incentives for clients who comply with building energy codes. Louisiana is currently awaiting the results of a twelvemonth study on the subject of insurance industry involvement in building energy codes, which may be available as early as this summer.

At least five states, including **Arizona**, **Kansas**, **Maryland**, **New Hampshire**, and **Vermont** have announced legislation this winter related to building energy codes. Several other states including **Alaska**, **Florida**, **Indiana**, **New Jersey**, **New Mexico**, **Washington**, and **Wisconsin** have begun or are planning to begin the exploratory **procedures necessary** to implement new codes or to clarify the benefits of energy codes to interested legislatures.

For more information on energy codes and state activities, or to receive a free copy of *Status of State Energy Codes*, the Building Codes Assistance Project (BCAP) newsletter, contact BCAP at **bcapaase.org** or go on-line at **www.crest.org/efficiency/bcap**.

IECC Residential Certification Exam Practice Workbook Now Available

The national model code organizations now offer training and certification in specific fields of code administration and enforcement. These voluntary certification programs encourage professionalism among code officials, architects, engineers, builders, and other residential construction professionals.

Over the past two years the U.S. Department of Energy's (DOE) Building Standards and Guidelines Program (BSGP) has been working with representatives of Building Officials and Code Administrators (BOCA) International, the Council of Building Officials, Inc. (ICBO), and Southern Building Code Congress International (SBCCI) to develop certification programs for Residential Energy Code Plans Examiner/ Inspector. These programs are designed to recognize and certify those individuals who demonstrate, through testing, a sufficient level of technical knowledge about the 1998 International Energy Conservation Code (IECC) requirements for low-rise residential buildings. The model code organizations now have the

programs in place and applicants are being accepted for testing.

To assist individuals in preparing for the certification exam, BSGP staff again worked with BOCA, ICBO, and SBCCI representatives to develop the Residential Certification Exam Practice Workbook. This workbook gives tips on successfully taking exams, summarizes and tests your knowledge of the residential requirements of the IECC, and offers a practice exam.

The workbook describes major residential requirements in each of the first five chapters of the IECC. After studying the requirements of a chapter, you can try answering sample questions based on that chapter. These questions are intended to test your understanding of the complete information in the code, not the summary descriptions in the workbook. To increase familiarity with the organization of material in the code, the answer to each question cites the chapter, section, and subsection number from the code.

This familiarity is important for the actual exam, where answers are based on specific code provisions.

After studying the first five chapters of the code and answering the sample questions at the end of each chapter in the workbook, you should be ready to take the practice exam. It is important that the practice exam conditions be as close as possible to those of the actual exam. The workbook describes the setting, the time limit, and how to get the maximum benefit from the simulation. The correct answer and code reference for each question in the practice exam are presented at the end of the workbook.

For information on the availability of and ordering the IECC Residential Certification Exam Practice Workbook, and general information on certification programs, contact BOCA at (800) 214-4321 Ext. 334; ICBO at (800) 423-6587; or SBCCI at (205) 591-1853.

Calendar

April 2000

Envelope and Window Installation Training Seminars, sponsored by the Builders' Association of Minnesota. Call (651) 646-7659 or (800) 654-7783 for more information or to register.

3-8: Affordable Comfort 2000, Columbus, Ohio. Register online at www.affordablecomfort.org or call (800) 344-4866 for more information.

9-20: Public Hearing on the 2000 Code Development Cycle for the "International" Codes, Birmingham, Alabama. Contact the International Code Council at (703)931-4533 for more information; see also **www.intlcode.org.**

May 2000

4-6: American Institute of Architects (AIA) 2000 National Convention and Exposition, Philadelphia, Pennsylvania. Contact: AIA, (202) 626-7395; see also **www.aiaonline.com**

19-20: JLC Live! Construction Business and Technology Conference and Expo, Providence, Rhode Island. Contact: Kevin Spaulding, Journal of Light Construction, (800) 552-1951 ext. 133; see also **www.jlclive.com**

Envelope and Window Installation Training Seminars, sponsored by the Builders' Association of Minnesota. Call (651) 646-7659 or (800) 654-7783 for more information or to register.

July 2000

9-12: 2000 National Workshop on State Building Energy Codes, sponsored by the U.S. Department of Energy and the State of Louisiana; New Orleans, Louisiana. Contact: Wade Byrd or Paula Ridgeway, Louisiana Department of Natural Resources, (225) 342-1399; see also www.energycodes.org/workshop/announce.html

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